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- (1) Klein-Machnow Institute, headed by Professor Alfred Hey - research on insecticides.
- (2) Achersleben Institute, headed by Professor Maximilian Klinkowsky - research on virus and pests.
- (3) Naumburg Institute, headed by Professor Hans Wartenberg - immunity and resistance research.
- (4) Muehlhausen Institute (a branch of the Naumburg Institute), also headed by Professor Wartenberg - research on potato diseases.

#### Naumburg Institute

5. The Naumburg Institute covers an area of about 350 (German) acres, on which are located experimental fields, gardens and vineyards. There are two buildings with laboratories and administrative offices, three plant houses, two large "infection houses", several small wine houses, stables for 16 horses, and a number of tool sheds. The Institute has a total crew of 68, including garden and field workers. It is subdivided into the following Departments:
  - (1) Zoological-Entomological Department, headed by Dr. Fritz Paul Mueller, who at the same time is Professor for Applied Entomology at Jena University. His two scientific collaborators are Biologist Dr. Siegfried Schell 1/ and Agriculturist Zech (fnu). There are four technical assistants.
  - (2) General Botany Department, headed by Institute Head Professor Hans Wartenberg, who is assisted by Frau Dr. M. Sass and Biologist Harald Döcker. There are three technical assistants.
  - (2) Microbiological Department, headed by Dr. Fritz Collnick, who at the same time is Professor for Microbiology at Jena University. There are three technical assistants.
6. The Naumburg Institute was founded shortly after World War I by Oberregierungsrat Dr. C. Boerner, with the main assignment of cultivating vines immune to attack by phylloxera vastatrix. Under Boerner's direction the practical aspect of the problem was emphasized. When Professor Wartenberg took over direction of the Institute in 1947, he reoriented its work in many respects, particularly by stressing fundamental research, such as the study of the parasite-host relations. Study was no longer confined to phylloxera vastatrix but was extended to include other parasite occurrences, such as oidium and peronospora. Following are specific research projects in which the Institute has been engaged during recent years:
  - A. Zoological-Entomological Department:
    - (1) Biological study of phylloxera vastatrix and genetical research on its biotypes. Also research on the causes of immunity against attack by phylloxera vastatrix. According to its ability to attack various vine types, various classes of phylloxera vastatrix biotypes were established. As a result of crossing experiments, at least preliminary conclusions as to some factors which determine immunity and resistance were reached. The department has a wide collection of vine types.
    - (2) Research on Myzodes persicae, which is considered to be the main carrier of potato virosis. Extensive study of the influence of climatic factors has been carried out.

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- (3) Research on carpocapza pomoniella.
- (4) Systematic study of aphids.

#### B. General Botany Department:

- (1) Cultivation of vines which resist phylloxera vastatrix, carried out in cooperation with the Zoological-Entomological Department. This work, started under Boerner and continued under Wartenberg, has resulted in the classification of a large assortment of vines according to their reaction to attack by phylloxera vastatrix. The Department has established a list of vine types classified according to their reaction. By combining the immunity of different types of vines and particularly by crossing experiments with the Cineres-Arnold vine, types of vines have been obtained which are completely or nearly immune against attack by all biotypes of phylloxera vastatrix.
- (2) Cultivation of types of apples immune to attack by eriosoma lanigerum and verrospora. Crossing experiments, particularly with the Ontario apple type, have been undertaken in order to obtain immune types. Seedlings obtained from crossings were infected and exposed to high temperature and humidity in infection houses. Those among them which are **vulnerable** to attack are killed there by the attackers, and the resistant types can be successfully separated.
- (3) Experimental study of potato virosis. Large scale field experiments with early and late planting dates have been carried out for the purpose of obtaining resistant seedlings. Furthermore, the ecological conditions of virus occurrences have been investigated.
- (4) Investigation of chlorosis (Kaeltechlorose). Research aims at finding the causes for this phenomenon, thus far unknown.
- (5) Investigation of the causes of "alfalfa death" (Luzernsterben). Research is directed toward the ecological conditions of this phenomenon.
- (6) Genetical study of malus species. The Institute has a large assortment of types of apple trees, including numerous wild species.

#### C. Microbiological Department:

Investigation of race differentiation of the following plant parasites have been carried out:-  
 Peronospora, oidium, phytophthora, monilia, potato cancer (Kartoffelkrebs).

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